PRODUCT TITLE : NEW MATERIAL DEVELOPMENT

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1. TIPPING PAPER

1.1. Malaucène micro-laser perforated tipping papers "3M 0,11.6.5 and 2M 0,17"

Objective

Possible replacement of the existing tipping paper on MLF-CH and MLK-CH brands with micro-laser type tipping paper.

Summary

MLF-CH and MLK-CH cigarettes are produced with electroperforated tipping paper Benkert Z3/60. The perforation of the tipping paper is more visible now, due to deterioration of Benkerts' quality. Trials have been carried out with micro-laser perforated tipping papers to attain the same smoke deliveries as obtained by using Z3/60. Unfortunately the late evaluations done on these trials were not conclusive.

The permeability of air of these micro-laser perforated tipping papers mentioned above are 59 l/h/4 cm. MLK-CH cigarettes were made with these qualities and compared to cigarettes made with Benkert Z3/60 (permeability of air : 59 l/h/4 cm). The results on dilution and smoke analyses have not been received yet. As soon as results are available the cigarettes will be submitted to taste evaluation for a final decision, concerning the use of micro-laser perforated tipping on MLK-CH and MLF-CH cigarettes.

1.2. Ecusta micro-mechanically perforated tipping paper

Objective

Possible replacement of the existing tipping paper on MLF-CH and MLK-CH with micro-mechanically perforated tipping paper.

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Summary

Ecusta submitted (1) micro-mechanically perforated tipping paper. The first trial run on MLK-CH to substitute the existing tipping paper Z3/60 was negatif : the dilution reached was low compared to the standard. We asked Ecusta to increase the permeability of air of the tipping paper. We recently received a sample of micro-mechanically perforated tipping paper at 60 l/h/4 cm.

Trial runs on MLK-CH cigarettes were done with this tipping paper and compared to cigarettes made with Benkert Z3/60. We have not yet received the dilution and smoke delivery results.

1.3. Benkert EPZ Z3/60 alternative quality Z3/60 0175

Objective

Possible replacement of the existing tipping paper on MLF-CH with an alternative quality of EPZ proposed by Benkert.

Summary

Benkert was contacted for the deterioration of their current quality (holes visible). Benkert proposed an alternative quality of tipping paper where the holes made by electro-perforation were less visible due to a quality change of the base paper. A trial has been done on MLF-CH cigarettes and was compared to their current quality (2).

The smoke results and dilution obtained by using the alternative quality of Benkert were comparable to the standard quality. Although a slight increase of puff count was noticed (7 %) the analytical smoke results were at the same level. We do not think that this increase of puff count is significant. The cigarettes were submitted to taste evaluation : the cigarettes were found different because during the first puffs the trial cigarettes "picked the nose" (3).

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2. FILTER PAPER

2.1 Schöller and Hoesch Fu POV 40 mgl and 150 mgl

Objective

Weight saving and increase of autonomy of the bobbins on the filter rod maker.

Summary

Schöller and Hoesch developed new porous plug wraps with a substance of 20 g/m2 which have properties comparable to their usual grades with a substance of 30 g/m2. From a technical point of view there is an advantage of less down time of the bobbins on the filter rod maker: the 20 g/m2 paper Fu POV 150 will be approximately 5000m long compared to only 3000m for the 30 g/m2 quality, for a specified outside diameter of the bobbin of 580mm. The first trial runs were done with Fu POV 150 mgl on FLLPC-100 filters for machinability tests, then FLL-CH cigarettes were made with these filters and compared to FLL-CH standard cigarettes. There was no significant difference noticed on smoke deliveries and dilution between trial and standard cigarettes (3). But tastewise the trial gave less impact.

On the variants of porous plug wrap proposed in the same series was the Fu POV 40 mgl. MLFPB-108 filters were made. An RTD of 355 mm WG was obtained on the filter rods (standard specification 375 mm WG). We presume that this deviation from the standard specification is because of the thickness of the paper. We noticed that the thickness of the quality submitted was 0.040 mm instead of the usual 0.073 mm. Since the RTD is a function of diameter, it is normal that a lower RTD was reached with the new filter paper submitted.

We are now going to produce MLF-CH cigarettes with these filters and compare them to MLF-CH standard cigarettes.

3. CIGARETTE PAPER WATTENS E-30179

Objective

Reduction of CO by using cigarette paper.

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Summary

Wattenspapier sent us a sample bobbin which is semi-combustible and has a permeability of air of 62 coresta. According to the supplier this paper can influence the carbon monoxide delivery of a cigarette (4).

We produced MLK-CH cigarettes with this cigarette paper, but we have not yet received the smoke delivery results.

4. NEW FILTRATION MATERIAL

4.1. Paper filters

Objective

Evaluation of paper filter efficiency.

We received three different types of paper filters from Intertaba. The physical characteristics of these filters are given in the table below.

Type	Δ007		Gala		Normal	
Length mm	108	100	108	100	108	100
RTD mm WG	254	247	202	193	257	246
St. deviation on RTD	18	-	6	-	14	-
Weight mg	906	833	898	818	862	788
Diameter mm	7.86	7.86	7.86	7.86	7.86	7.86

In order to determine if the filtration efficiency is proportional to filter tip length we produced standard cigarettes with filter tips of 10 mm, 18 mm and 25 mm. All these cigarettes will be smoked to a butt length of 33 mm.

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4.2. Polyolefin fibers

Objective

Evaluation of filtration efficiency of Polyolefin fibers.

Samples of polyolefin fibers were submitted by 3M Switzerland. Two types of polyolefin fiber have been evaluated for their filtration efficiency : type M which is pure polyolefin fiber and type C which is a mixture of polyester, polyolefin fiber (35 % polyester and 65 % polyolefin fiber by weight). Cambridge type pads were made with these fibers and compared to usual Cambridge pad filters for their efficiencies. For a given weight the C type is 10 % more efficient than the Cambridge pad and the M type is 57 % more efficient. We repeated the experiences twice and the results were in accordance. We went further and made hand made filters with these fibers and compared the efficiencies to cellulose acetate filters. For this purpose we used Merit-DB type cigarettes where we could take out the cellulose acetate filter and replace it with the fibers mentioned above. We respected the specification for the total RTD (147 mm WG encapsulated), using 80 mg of M type fibers, 100 mg of C type fibers respectively. Efficiencies determined on the basis of smoke nicotine are shown in the table below.

Type	C	M	Cellule Acetate 2.5 / 48.000 Y
Mean Total RTD cigarette mm WG	140	156	147
St. deviation on RTD	21	21	5
Weight of fiber "mg"	100±5	80±5	146
Smoke nicotine found on the filter "mg"	1.13	1.04	0.86
Smoke nicotine found on Cambridge "mg"	0.34	0.40	0.69
Efficiency % on the basis of smoke nicotine	77	72	55
Nb of puffs	6.8	6.9	6.9

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On the basis of the results obtained we can assume that polyolefin fibers submitted are more efficient than the cellulose acetate fibers. Research work will continue on this subject. Our main objective now is to produce polyolefin filters on filter machines and to evaluate the filters obtained.

References :

1. Monthly report on New Material Development of July 1980.

2. Monthly report on New Material Development of November 1980.

3. Taste evaluation of December 3rd, 1980.

4. Letter of Watterspapier to E. Erkohen, October 14th, 1980.

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